Governing Emissions Trading: Constructing Core Convergence Criteria for Linkage

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Abstract—The emergence of emissions trading schemes has come to represent a central component of an increasingly fragmented climate governance landscape. Whilst market trading is far from uncontroversial as a climate policy tool, the presence and proliferation of emissions trading schemes raises new and challenging questions concerning the appropriate design of such schemes. The task of designing appropriate emissions trading architectures to avoid the development of conflicting norms, particularly where conflict could undermine the environmental integrity of such schemes, is now a fundamental consideration in climate governance research. This article engages with this concern by critically evaluating the concept of linkage before advancing a framework for assessing the compatibility of potential partner emissions trading schemes based on a series of core convergence criteria, the presence of which are considered a prerequisite to durable linkage. An incrementalist perspective is advanced which conceptualises linkage as a process, rather than a single one-time event. This article concludes that it is possible to construct a stable foundation for the implementation of linkages between emissions trading schemes based on core convergence criteria. This may provide a more fruitful pathway in view of the glacial progress of international negotiations to agree post-Kyoto binding commitments.

Key words: EU ETS; carbon emissions trading; linkage; climate governance.

1 Introduction

The emergence of emissions trading schemes has come to represent a central component of an increasingly fragmented climate governance landscape. Indeed, it is noteworthy that climate change policies are highly characterised by the use of market-based policy instruments.[1] In the years since the launch of the European Union's flagship carbon reduction policy, the Emissions Trading Scheme (EU ETS), the 'incentive, opportunity and momentum to link the EU ETS

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1. Marjan Peeters, 'Inspection and Market-Based Regulation through Emissions Trading: The Striking Reliance on Self-Monitoring, Self-Reporting and Verification' (2009) 2(1) Utrecht Law Review 177, 177.

to other emissions trading schemes have increased dramatically'.[2] The drivers influencing the dynamic evolution of emissions trading in the EU are multifaceted and have been considered elsewhere,[3] whilst the ethics of emissions trading continues to remain a matter of intense debate.[4] Yet the presence of carbon markets and their centrality in any climate governance landscape rooted in reality is increasingly acknowledged as a political fact. Given this, the proliferation of emissions trading schemes raises new and complex questions concerning the appropriate design of such schemes.[5] The challenge of designing appropriate emissions trading architectures to avoid the development of conflicting norms, particularly where such conflict could undermine the environmental integrity of such schemes, has emerged as a fundamental consideration in climate governance research and policy-making.

This article engages with this challenge and advances an incrementalist vision which envisages the gradual implementation of linkages between schemes. Orthodox conceptualisations have generally construed linkage as an event denoting the admissibility of allowances or credits generated from one scheme for compliance purposes in another linked scheme, but as Section 2 will demonstrate – consistent with an incrementalist perspective – linkage is better understood as a process rather than a single one-time event. The prospect of establishing linkages between the EU ETS and other emissions trading schemes is central to the EU's vision of carbon trading on a global scale.[6] From the earliest stages of emissions trading, European policy-makers have envisaged that the EU ETS would form a key component of a global trading framework and perhaps even represent the 'blueprint' for an interconnected international system.[7]

2. MJ Mace and Jason Anderson, 'Legal and Design Issues Arising in Linking the EU ETS with Existing and Emerging Emissions Trading Schemes' (2009) 6(2) Journal for European Environmental and Planning Law 197, 198.
3. Frank Convery, 'Origins and Development of the EU ETS' (2009) 43 Environmental and Resource Economics 391; Jürgen Lefevere, 'The EU Greenhouse Gas Emission Allowance Trading Scheme' in Farhana Yamin (ed), *Climate Change and Carbon Markets: A Handbook of Emission Reduction Mechanisms* (Earthscan 2005) 75; and Jos Delbeke, 'The Emissions Trading Scheme (ETS): The Cornerstone of the EU's Implementation of the Kyoto Protocol' in Jos Delbeke and colleagues (eds), *EU Energy Law, Volume IV: Environmental Law: The Greenhouse Gas Emissions Trading Scheme* (Claeys and Casteels 2006) 1.
4. For example, see Gerd Winter, 'The Climate Is No Commodity: Taking Stock of the Emissions Trading System' (2010) 22(1) Journal of Environmental Law 1.
5. It is important to draw a distinction between an inquiry into the appropriate design of emissions trading schemes and the question of the normative desirability (or otherwise) of economic incentive approaches generally.
6. Commission, 'Towards a Comprehensive Climate Change Agreement in Copenhagen' (Communication) COM (2009) 39 final.
7. Jos Delbeke, 'The Emissions Trading Scheme (ETS): The Cornerstone of the EU's Implementation of the Kyoto Protocol' (2006) 1(2) European Review of Energy Markets 1, 13.

Indeed, Article 25(1) of Directive 2003/87/EC explicitly encourages linkages with other emissions trading schemes.[8]

Whilst this vision is important and may ultimately prove crucial to the future viability of emissions trading as a climate governance tool, it is also vital that the environmental integrity of the EU ETS is not subordinated to political considerations which could promote more expeditious progress towards a global trading network. Consequently, Section 3 identifies a governing rule of environmental integrity which demands that the implementation of direct linkage between the EU ETS and a second scheme should not lead to fewer emissions reductions than if either scheme continued to operate independently. Section 3 proceeds to develop a framework, informed by this governing rule, to assess the appropriateness of implementing direct linkage based on the development of five core convergence criteria. It is argued that the core convergence criteria represent fundamental design features which must be compatible to ensure a de minimis degree of alignment is present before implementation of direct linkage with the EU ETS. This approach is not without risk: stringent adherence to the governing rule of environmental integrity could slow progress towards the EU's vision of positioning its scheme at the heart of an international trading framework. However, such an approach is consistent with a utilitarian understanding of the contribution of emissions trading to climate governance: more specifically, that it is possible to use the market for economic efficiency purposes in an instrumentalist manner to advance climate policy goals.[9] As such, environmental integrity must remain central to such an evolving framework and it is suggested that the core convergence criteria defined in this article secures this objective by requiring the implementation and maintenance of a sufficient degree of compatibility between candidate linkage schemes. Section 4 reflects on the diversity of architectures emerging in the sphere of climate governance before reconstructing this discussion in the more discrete context of emissions trading. A vision advocating the incremental alignment of emissions trading schemes is offered which is premised on a linkage by degrees model. Finally, Section 5 concludes that it is possible to construct a stable foundation for the incremental convergence of emissions trading schemes based on political and regulatory cooperation. Indeed, this may provide a more fruitful pathway in view of the glacial progress of international negotiations to agree binding carbon reduction commitments.

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8. Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC [2003] OJ L273/32, as amended, hereafter the 'EU ETS Directive'.
9. Eckard Rehbinder, 'Ecological Contracts: Agreements Between Polluters and Local Communities' in Gunther Teubner, Lindsay Farmer and Declan Murphy (eds), *Environmental Law and Ecological Responsibility: The Concept and Practice of Ecological Self-Organization* (John Wiley & Sons 1994) 147.

2 Deconstructing Linkage

2.1 The Concept of Linkage

To date, the implementation of linkage between schemes has been described as 'understudied',[10] whilst 'practice on linking remains in its early stages'.[11] However, as more countries consider the adoption of emissions trading schemes, the concept of linkage is likely to increase in prominence. It is notable, for example, that over half of the parties to the Paris Agreement indicated their intention to use or consider the use of market-based instruments from international, regional, or domestic schemes.[12] Yet significant concerns have already been raised regarding the institutional design of nascent trading schemes beyond the EU. Sterk and Schüle have cautioned that 'emerging systems are probably going to be designed *very differently* from the EU ETS',[13] whilst Türk and colleagues have observed that 'the emergence, to date, of national and regional carbon markets has been characterised by a *virtual absence* of institutional structures for the governance of trading markets across borders'.[14] Given this, the concept of linkage – what can appropriately be considered as within the definition of the term and how such linkages might develop – is of particular importance.[15]

Traditionally the concept of linkage has been construed as denoting the specific context of the regulatory authority of one trading scheme allowing regulated entities to use allowances (or emission reduction credits) generated from another scheme for the purposes of satisfying domestic

10. Jørgen Wettestad and Torbjørg Jevnaker, 'The EU's Quest for Linked Carbon Markets: Achievements and Challenges' (International Studies Association Annual Convention, San Francisco, 3–6 April 2013) 2 <https://www.yumpu.com/en/document/view/24270183/the-eus-quest-for-linked-carbon-markets-fridtjof-nansens-institutt> accessed 2 May 2017.
11. Sampo Seppänen and colleagues, *Demand in a Fragmented Global Carbon Market: Outlook and Policy Options* (Norden 2013) 56.
12. Daniel Bodansky, 'The Paris Climate Change Agreement: A New Hope?' (2016) 110 The American Journal of International Law 269, 307.
13. Wolfgang Sterk and Ralf Schüle, 'Advancing the Climate Regime through Linking Domestic Emission Trading Systems' (2009) 14 Mitigation and Adaption Strategies for Global Change 409, 413 (emphasis added).
14. Andreas Türk, Michael Mehling, Christian Flachsland and Wolfgang Sterk, 'Linking Carbon Markets: Concepts, Case Studies and Pathways' (2009) 9 Climate Policy 341, 342 (emphasis added).
15. Dyck has observed that linkage is not a new concept and has 'long been advocated as a way to develop global cooperation on international trade'.
See Tyson Dyck, 'Missing Linkages: Canada, Cap-and-Trade and the International Climate Architecture' (2009) 8(1) Canadian International Lawyer 1, 13 and, for a discussion of linkage in the context of trade law, Oren Perez, 'Multiple Regimes, Issues Linkage, and International Cooperation: Exploring the Role of the WTO' (2005) 26(4) University of Pennsylvania Journal of International Economic Law 735.

compliance obligations.[16] Haite's exposition of this classic definition provides that 'two national emissions trading schemes are linked if one country's allowance can be used, directly or indirectly, by a participant in the other country's scheme for compliance purposes'.[17] More recently, however, this classic definition has been reconsidered. Metcalfe and Weisbach, for example, have expounded a particularly expansive definition of linkage which is not only limited to emissions trading, but instead encompasses any 'policies that allow regional or national carbon regimes to interact in such a way as to narrow or eliminate differences in the marginal cost of abatement between different regions or countries'.[18] Burtraw and colleagues, in a persuasive study examining pathways and modalities of linkage, have articulated a definition which moves beyond the orthodox understanding by 'expand[ing] the definition of … linking to also describe the incremental alignment of various program elements across trading programs'.[19] This article builds on the conceptualisation offered by Burtraw and colleagues by defining core convergence criteria to facilitate and guide pathways towards direct linkage. Through the elaboration of criteria predicated on the implementation and maintenance of a sufficient degree of compatibility between potential linkage partner schemes, this article conceptualises linkage by degrees as a fluid and facilitating concept which can incrementally deepen and enhance architectures to govern emissions trading.

Incrementalism, in this context, emphasises the importance of gradual harmonisation by actively ensuring that cross-scale interactions produce complementary rather than conflicting actions,[20] whilst displaying a healthy scepticism towards the prospect of achieving the ultimate vision of a comprehensive and binding global climate change agreement by means of a 'big bang'.[21]

16. This is the widely employed definition evident in the literature: Alexander Roßnagel, 'Evaluating Links Between Emissions Trading Schemes: An Analytical Framework' (2008) Carbon and Climate Law Review 394; Michael Mehling and Erik Haites, 'Mechanisms for Linking Emissions Trading Schemes' (2009) 9 Climate Policy 169; Gilbert Metcalfe and David Weisbach, 'Linking Policies When Tastes Differ: Global Climate Policy in a Heterogeneous World' (2012) 6(1) Review of Environmental Economics and Policy 110; and Mace and Anderson (n 2).
17. Erik Haites, 'Harmonisation Between National and International Tradeable Permit Schemes: CATEP Synthesis Paper' (2003) OECD, March 2003, 5.
18. Metcalfe and Weisbach (n 10) 113.
19. David Burtraw, Karen Palmer, Clayton Munnings, Paige Weber and Matt Woerman, 'Linking by Degrees: Incremental Alignment of Cap-and-Trade Markets' (2013) Resources for the Future Discussion Paper 04/2013, 1.
20. Oran Young, 'Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions' in Elinor Ostrom and colleagues (eds), *The Drama of the Commons* (National Academies Press 2002) 263, 266.
21. As described by Bodansky and Diringer, the 'big bang theory' of climate treaty-making refers to a very rapid process of deepening obligations – whereas, more typically regimes start out quite shallow, with weak obligations, and gradually become

Such progress, via fragmented and multi-speed efforts, has been described, in a nod to American constitutionalism, as Madisonian and resulting in something akin to a global federalism of climate policy.[22] An incrementalist approach is also attractive as it progresses the medium-term objective of a fully linked emissions trading network, whilst advancing with greater urgency the more immediate objective of ensuring that emerging trading schemes are not so disconnected so as to be incompatible with one another.

The implementation of linkage between emissions trading schemes is necessary to minimise and ideally remove the potential for conflict between such schemes. Linkage, however, should go further by actively nurturing complementarity between schemes. Young has emphasised that institutions can interact with one another as a result of both functional interdependencies arising from inherent connections and strategic links arising from exercises in political design and management.[23] In the latter sense, the contribution of linkage to climate governance becomes readily apparent as an exercise in political management 'to forge connections between or among institutions *intentionally in the interests of pursuing individual or collective goals*'.[24] Indeed, in the context of climate governance, it is difficult to overstate the importance of promoting and facilitating complementary interaction, particularly given that there remains 'a mismatch between the apparent seriousness of the problem and our collective institutional response'.[25]

Linkage, as construed in this article, is not only outcome-oriented, but extends to incorporating the process by which the outcome of direct linkage is advanced. Consequently, the typology of linkage offered in Section 2.2 recognises that the *process* by which direct linkage is incrementally implemented – linkage by degrees – is properly within the definition of linkage.[26] This conceptualisation also recognises that the process of linkage 'does not have a

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deeper over time: Daniel Bodansky and Elliot Diringer, *Towards an Integrated Multi-track Climate Framework* (Pew Center on Global Climate Change 2007) 13.

22. David Victor, Joshua House and Sarah Joy, 'A Madisonian Approach to Climate Policy' (2005) 309 Science 1820, 1820.
23. Young, 'Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions' (n 20) 264; and Oran Young, 'Institutional Linkages in International Society' (1996) 2 Global Governance 1.
24. Young, 'Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions' (n 20) 264 (emphasis added).
25. Stephen Gardiner, 'Saved by Disaster? Abrupt Climate Change, Political Inertia, and the Possibility of an Intergenerational Arms Race' (2009) 40(2) Journal of Social Philosophy 140, 143.
26. In this context, the underlying environmental rationale for each emissions trading scheme, consistent with the instrumentalist philosophy emphasised at n 9 remains constant: the achievement of carbon emissions reductions. However, it is recognised that there will be some variation with respect to the level of ambition of each linked scheme.

final stage [and] will be ongoing'.[27] It is, for example, always open to sovereign jurisdictions to change their minds about climate policies and consequently linkage is not immutable.[28] However, even after the implementation of direct linkage, regulatory authorities governing linked schemes will need to collaborate closely with one another to ensure that the schemes remain compatible.[29] Such regulatory dialogues are increasingly common and, in the context of potentially uncertain and changing climate governance circumstances, the maintenance of successful emissions trading linkages will require particularly close coordination between regulatory authorities.[30]

2.2 A Typology of Linkages

Linkages, as Jaffe, Ranson and Stavins have observed, may be characterised as direct or indirect.[31] This classic definition, now widely adopted in the literature, extends to secondarily classifying direct linkages as unilateral, bilateral, or multilateral. Building on this typology, it is possible to envisage a further category which Burtraw and colleagues have termed 'linking by degrees'.[32] Whilst this broader construction does not yet represent a settled definition of the concept, it is preferable to the orthodox understanding by providing a more nuanced organising framework to understand and make sense of the complex and fluid world of carbon emissions trading.

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27. Burtraw and colleagues (n 19) 4.
28. William A Pizer and Andrew J Yates, 'Terminating Links Between Emissions Trading Programs' (2015) 71 Journal of Environmental Economics and Management 142, 151.
29. Drawing on the experiences of transnational regulation in the context of the financial services sector, the EU–US Financial Markets Regulatory Dialogue offers one example of a viable template for regularising structured dialogue and cooperation. For a detailed evaluation of the Transatlantic Financial Markets Regulatory Dialogue, see: Kern Alexander, Eilís Ferran, Howell Jackson and Niamh Moloney, 'The Transatlantic Financial Markets Regulatory Dialogue' (2006) 7(3) European Business Organization Law Review 647; and Hans-Jürgen Hellwig, 'The Transatlantic Financial Markets Regulatory Dialogue' in Klaus Hopt, Eddy Wymeersch, Hideki Kanda and Harald Baum (eds), *Corporate Governance in Context: Corporations, States, and Markets in Europe, Japan, and the US* (Oxford University Press 2005) 188.
30. John Braithwaite and Peter Drahos, *Global Business Regulation* (Cambridge University Press 2000) 562.
31. Judson Jaffe, Matthew Ranson and Robert Stavins, 'Linking Tradable Permit Systems: A Key Element of Emerging International Climate Policy Architecture' (2009) 36 Ecology Law Quarterly 789. Whilst it is possible to construct further subcategories, such as 'direct and comprehensive linking' and 'direct and limited linking', as suggested by Roßnagel, it is not proposed to adopt such a classification here. See Alexander Roßnagel, 'Evaluating Links Between Emissions Trading Schemes: An Analytical Framework' [2008] Carbon and Climate Law Review 394, 396–97.
32. Burtraw and colleagues (n 19).

2.2.1 Direct Linkages

To establish a direct linkage between two systems, either one or both systems must accept the other's allowances or credits as valid for compliance purposes in its domestic system.[33] Direct linkages may, however, be distinguished by whether they permit trading in one or more directions.

A ***unilateral linkage*** can be said to exist in circumstances where one system's domestic legislation (or operating rules) provides that allowances from a foreign scheme are recognised for domestic compliance purposes. As a result, entities in one system may purchase and use allowances or credits issued under another system for compliance purposes, but the reverse does not apply. An administrator of one trading scheme could establish a unilateral link with a second trading scheme by signalling its readiness to accept allowances or credits issued by that other scheme for compliance purposes. Indeed, this had previously been the case with respect to Norway, prior to that country's full integration with the EU ETS.

During Phase I of the EU ETS, Norway accepted EU allowances for compliance purposes with its domestic scheme.[34] However, the EU did not reciprocate by accepting Norwegian allowances during the same period. In such a scenario we can still expect market dynamics to lead to the convergence of allowance prices. For example, if system A establishes a one-way link by recognising system B's allowances, and system A's allowance price is the higher of the two, then inter-system trading can be expected to occur until the prices of the two systems stabilise at an intermediate level. Similarly, if system A's prices are lower to begin with, then there is no incentive for regulated entities to engage in trading.[35] Price stabilisation between schemes may also function as a price cap. For example, in the context of the EU-Norwegian link, Norwegian firms would not purchase EU allowances until such time as the price of their domestic allowances exceeded that of the EU allowances. The Memorandum of Understanding (MoU) of the Regional Greenhouse Gas Initiative (RGGI), a carbon-trading partnership of nine U.S. states, also provided for a unilateral link to the EU ETS conditional on the breach of a price ceiling for RGGI allowances.[36] Since the price ceiling has never been triggered, this 'safety valve' has yet to be invoked in practice, but the presence of such a provision demonstrates the diversity of direct linkage models.

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33. Jaffe, Ranson and Stavins (n 31) 796.
34. Phase I of the EU ETS preceded the Kyoto 'commitment period' and lasted from 2005–07.
35. Judson Jaffe and Robert Stavins, Linking Tradable Permit Systems for Greenhouse Gas Emissions: Opportunities, Implications, and Challenge (Analysis Group 2007) 11.
36. Clause F(4)(a) 'Safety Valve Trigger', Regional Greenhouse Gas Initiative Memorandum of Understanding, 20 December 2005. The presence of such a 'safety valve trigger', however, quite aside from serving as a gateway to linkage, raises more fundamental questions about establishing a stable long-term linkage between the RGGI and EU ETS.

A ***bilateral linkage*** occurs when two trading schemes mutually recognise allowances as eligible for compliance, thereby facilitating two-way traffic between schemes. If more than two systems participate, such a link is more properly characterised as a ***multilateral linkage***, since it permits the flow of allowances between multiple trading systems. The implementation of such bilateral or multilateral linkages necessarily involves considerable coordination to synchronise the relevant legislation and rules governing each scheme.[37] Depending on the design features of each linked schemes, a bilateral link will tend to harmonise the allowance prices of the linked schemes. Thus, even though a price variation may exist when the link is first established, rationally behaving operators in the scheme with the higher price would purchase allowances from sellers in the lower-price scheme, a phenomenon which should persist until a convergence price is achieved.[38] However, if multiple emissions trading schemes establish linkages with one another, the governance framework could become much more complex. For example, as Blyth and Bosi have explained:

Negotiations, by definition, are about compromises, with an uncertain outcome. Non-EU countries interested in linking their domestic trading scheme with the EU ETS might have an interest in being first in line in any linking negotiations with the EU. Once bilateral negotiations on linking the two schemes and decisions have been made on eligible units and compliance regimes of the linked schemes, then a third country wishing to link with an 'expanded-EU' scheme might very well need to negotiate with the two parties: the EU and the linked country, and no longer only the EU.[39]

From the EU perspective, Article 12 of the EU ETS Directive provides that where allowances are recognised under Article 25, Member States are required to facilitate without restrictions the transfer of such allowances between persons within the EU and persons in third countries.[40] Thus, the Directive not only promotes the concept of linkage, but also clearly facilitates the mechanics of such bilateral linkages.

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37. Türk, Mehling, Flachsland and Sterk (n 19) 343.
38. This general observation regarding the operation of a bilateral linkage on a macro level will conceal variations which occur at a micro level. For example, net sellers in a system with a low price will be better off after a link to a system with a higher price, because they will, in all likelihood, benefit from being able to sell their allowances at a higher equilibrium price. Consequently, net buyers in the lower price system will be worse off after linking, because they will have to pay this higher converged price for allowances. Thus, while yielding overall cost savings, linking can create both winners and losers: see Jaffe, Ranson and Stavins (n 22) 800.
39. William Blyth and Martina Bosi, *Linking Non-EU Domestic Emissions Trading Schemes with the EU Emissions Trading Scheme* (Organisation for Economic Cooperation and Development 2004) 31.
40. Article 12(1)(b) expressly permits restrictions which may be adopted pursuant to the Directive or otherwise contained within it.

Whilst an integrated multilateral market, based on a series of direct linkages between countries could emerge as more likely following implementations of the Paris Agreement, indirect links are already steadily developing. In fact, most emerging emissions trading systems foresee linkage with the Kyoto Protocol's Clean Development Mechanism (CDM), and as such, indirect linkages between these schemes will develop.

2.2.2 Indirect Linkages

Indirect linkages can be said to occur when two schemes, A and B, are not linked to each other, but are separately linked to a third system C. As trading schemes continue to promote linkages to the CDM, the emergence of a web of mostly indirect linkages grows increasingly likely.[41] Despite concerns about its performance, the CDM has developed a substantial constituency and is likely to remain a core component of any post-Paris Agreement landscape.[42] In fact, it has been suggested that indirect linkage via an emission-reduction-credit system such as the CDM could yet emerge as an important part – if not the key fulcrum – of emerging international climate governance architectures.[43] Under the CDM, certified emission reduction credits (CERs) are awarded for voluntary emission reduction projects in developing countries that ratified the Protocol, but are not among the Annex B countries subject to the Protocol's emission limitation commitments. While CERs may be used by Annex B countries to meet their compliance commitments, they may also be used for compliance by entities covered by other cap-and-trade systems, including emerging schemes in the United States.

The EU adopted Directive 2004/101/EC, which introduced a link between the EU ETS and the CDM.[44] At that time the Commission explained that linkage with the CDM (and Joint Implementation, the other carbon abatement mechanism sanctioned under the Kyoto Protocol) would 'not only provide a cost-effective means for EU-based industries to cut their emissions but also create additional

41. For example, the EU ETS Directive at present accommodates such a linkage. The Chicago Climate Change also has a link with the CDM, as does Japan. Prior to its absorption into the EU ETS, the Norwegian scheme was also linked with the CDM: see Timo Behr and Jan Martin Witte, Towards a Global Carbon Market: Potential and Limits of Carbon Market Integration (Global Public Policy Institute 2009) 7.
42. UNFCCC, 'Governments See CDM as Crucial for Paris Goals' (8 November 2016) <http://newsroom.unfccc.int/paris-agreement/governments-see-cdm-as-crucial-for-paris-goals/> accessed 2 May 2017.
43. Jaffe, Ranson and Stavins (n 31) 803.
44. Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms [2004] OJ L338/18, hereafter referred to as the 'Linking Directive'.

incentives for businesses to invest in emission reduction projects elsewhere'.[45] In many ways the Linking Directive represents the first tentative steps towards expansion of the EU ETS. The CDM, though hailed as 'a masterpiece of compromise',[46] has been and continues to remain a highly controversial mechanism.[47] The credits which are awarded to a particular project are based upon an estimate of how much the project reduces emissions from an agreed baseline level. This process essentially seeks to forecast what emissions would have been discharged in the absence of the particular project. For example, if an energy company that was planning to build a coal-fired power station, instead decides to construct a hydroelectric power plant, it is awarded and may then sell credits equal to the net difference in its emissions. It must, however, demonstrate that in the absence of the CDM programme it would have constructed the coal-fired plant. As a result, a problem of 'additionality' has been identified which has generated a considerable body of research and commentary focusing on the true value of offsetting and raising questions concerning the impact of CERs on the environmental integrity of emissions trading objectives.[48]

Whilst suspicions concerning questionable assessments of additionality and a convoluted articulation of sustainable development have bedevilled the functioning of the CDM, there have been notable successes. Between 2002 and 2008 the mechanism facilitated the exchange of 1.9 billion credits worth US$23 billion and, drawing on this success, van Asselt has observed that 'it is undeniable

45. Commission, *EU Emissions Trading: An Open Scheme Promoting Global Innovation to Combat Climate Change* (EU Commission 2005) 3–4.
46. Hugh Wilkins, 'What's New in the CDM?' (2002) 11(2) Review of European Community and International Environmental Law 144.
47. Some scholars suggest that since anthropogenic climate change is a global phenomenon, abatement should occur anywhere: see Timo Behr and Jan Witte, *Towards a Global Carbon Market: Potential and Limits of Carbon Market Integration* (Global Public Policy Institute 2009) 13; and Nicholas Stern, *A Blueprint for a Safer Planet: How We Can Save the World and Create Prosperity* (Vintage 2010) 162. Other scholars question the moral and ethical dimensions of such abatement methods: see Steffen Böhm and Siddhartha Dabhi (eds), *Failures of Global Carbon Markets and CDM? Upsetting the Offset: The Political Economy of Carbon Markets* (MayFlyBooks 2009).
48. For example, Lohmann has contended that offsets assume physical equivalence for diverse points in the cycle of a greenhouse gas where serious non-equivalence prevails, whereas in reality, strong uncertainty surrounds the permanence of different carbon offsets. See Larry Lohmann, 'Carbon Trading: A Critical Conversation on Climate Change, Privatisation and Power' (2006) No 46 Development Dialogue, 251. Michaelowa has observed that whilst most assessments of the CDM are 'generally based on the premise that carbon markets are an innovative instrument with some teething troubles that can be overcome relatively easily', Lohmann's thesis instead represents a current of market critique based on 'a principled, anti-capitalist stance'. See Axel Michaelowa, 'Review: Failures of Global Carbon Markets and CDM? Upsetting the Offset: The Political Economy of Carbon Markets' (2011) 11 Climate Policy 839.

that [the CDM] has clearly contributed to expanding low carbon investments in developing countries'.[49] Moreover, the market-based nature of the mechanism has facilitated the identification of low-cost emission reduction opportunities, so-called 'low hanging fruit', which – without the financial incentivisation provided by the CDM – may otherwise have been overlooked. The CDM has broadened and deepened experience with economic instruments and contributed to building a consensus favouring a long-term role for market-based instruments in climate governance. Given this context, it is reasonable to anticipate that the mechanism will endure in the landscape emerging from the Paris Agreement.[50]

2.2.3 Linkage by Degrees

Burtraw and colleagues have described linkage by degrees as 'the practice of incrementally aligning key program elements of cap-and-trade programs prior to the potential introduction of formal linking enabling the exchange of allowances or offsets'.[51] Such an approach recognises that a global carbon market is likely to occur incrementally in a staged process.[52] This perspective challenges the orthodox position that a global trading architecture can only be framed via multilateral climate negotiations and the contrary but equally implausible perspective that the 'quest to build inclusive trading markets' should be entirely abandoned in favour of short-term political deals.[53] As such, linkage by degrees represents a via media between the Scylla of investing excessive energies in a flailing multilateral negotiation process and the Charybdis of atomised and potentially conflictive climate governance initiatives. An incrementalist perspective instead recognises that domestic policies must be embedded within a broader international vision. Moreover, the contours of such an approach are

49. Harro van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Edward Elgar Publishing Limited 2014) 20.
50. For a further discussion of the CDM and the potential future of the mechanism under the provisions of the Paris Agreement, see Gerard Kelly, 'Assessing the Climate Governance Contribution and Future of the Clean Development Mechanism' (2018) Nordic Journal of International Law (forthcoming).
51. Burtraw and colleagues (n 19) 9.
52. As Betsill and Hoffmann have observed: 'Instead of a top-down approach situated in the multilateral treaty regime, it is more likely that a global system will emerge, as cap and trade systems in different policy venues are linked to one another so that permits can be traded across systems.' See Michele Betsill and Matthew Hoffmann, 'The Contours of "Cap and Trade": The Evolution of Emissions Trading Systems for Greenhouse Gases' (2011) 28(1) Review of Policy Research 83, 100.
    This is consistent with the perspective of Türk, Mehling, Flachsland and Sterk, who have suggested that the emergence of a global carbon market is 'likely to occur through an evolutionary process of market integration'. See Türk, Mehling, Flachsland and Sterk (n 19) 355.
53. Thomas Heller, 'Climate Change: Designing an Effective Response' in Ernesto Zedillo (ed), *Global Warming: Looking Beyond Kyoto* (Brookings Institution 2007) 115, 140.

already evident in practice with the EU Commission recognising that it should actively promote wider participation by helping interested developing countries gain practical experience in emissions trading.[54]

Linkage by degrees provides a process by which design features of emerging schemes may be pre-emptively synchronised or later gradually reconciled where potentially conflictive differences could otherwise emerge. Such an approach emphasises the fundamental importance of ensuring that, as emissions trading schemes emerge, 'considerable efforts are made in all directions to prioritise linking in the future'.[55] It should be recalled that the challenge is not to construct perfectly identical emissions trading schemes, but rather to facilitate alignments representing the de minimis degree of alignment necessary before the implementation of direct linkage.[56] Compatibility, not identity, is the crucial touchstone. Such an approach does not put a premium on the lowest common denominator, but rather seeks to construct a global framework incrementally by degrees. Nor does it seek to limit the degree of convergence which may conceivably occur. Whilst the objective of establishing a global carbon trading architecture via a universal and comprehensive treaty should not be disregarded and the certainty offered by the binding force of such an approach is attractive, Hoffmann's observation that the future of multilateral negotiations 'appears dim' provides a salutary warning against misplaced confidence and excessive policy-making energies in constructing such a pathway.[57] Instead, an incremental approach focusing on 'finding common ground on which to link [schemes] is likely to both supplement and support international climate policy'.[58] Assessing opportunities for incremental alignment between emissions trading schemes should identify what might be considered as 'low-hanging design features': those features which represent administratively straightforward opportunities for harmonisation. As such, linkage by degrees enables multi-speed efforts towards deepening complementarity and ensures that progress is not held hostage by the failure to secure a more comprehensive direct linkage agreement. Such incremental steps may also generate momentum for enhanced coordination.

3 Establishing Core Convergence Criteria for Direct Linkage

The concept of linkage has now emerged as a central theme in the governance of emissions trading. Indeed, from the earliest stages of exploring the

54. Commission, 'Towards a Comprehensive Climate Change Agreement in Copenhagen' (n 6).
55. Alyssa Gilbert, 'Linking Carbon Markets: The Climate Change Silver Bullet?' (2009) 20(6) Energy and Environment 901, 920.
56. Burtraw and colleagues (n 19) 10.
57. Matthew Hoffmann, 'Global Climate Change' in Robert Falkner (ed), *The Handbook of Global Climate and Environment Policy* (John Wiley & Sons Ltd 2013) 3, 11.
58. Gilbert (n 55) 925.

potential contribution of emissions trading to climate governance in the EU, it was evident that the international dimension was highly relevant. Yet whilst the EU has actively promoted its model of emissions trading, there has to date been little substantive synchronisation of the EU ETS with other emerging regional trading schemes. The notable exception to this has been the full integration of EFTA Member States with the EU ETS. This development is not entirely surprising given the pre-existing heightened culture of harmonisation between the EU and EFTA Member States across a number of competences.[59] Instead, the key challenge lies in assessing how the modalities of linking the EU ETS with other regional emissions trading schemes could be achieved in the absence of such a developed harmonisation culture. Fundamental to this task is an evaluation of the design features which constitute core convergence criteria and the challenges of translating negotiated linking compromises into legally viable and durable arrangements.

3.1 The Necessity for Core Convergence Criteria

The cross-compatibility of certain fundamental design features across all linked schemes, what we may construe as *core convergence criteria*, is not optional but integral to the very functioning of any internationalised vision of emissions trading beyond the EU. The EU's Seventh Environment Action Programme maintains that the EU ETS will 'continue to be a central pillar of Union climate policy beyond 2020'. Indeed, the EU so far has built its climate policy on the assumption that major trading partners will, over time, implement comparable policies.[60] However, the need for early dialogue regarding core convergence criteria, particularly as trading schemes emerge beyond the EU, is fundamental and explains why the incremental alignment of key design features of emissions trading schemes prior to the operationalisation of direct linkage may prove such a valuable route map to international emissions trading. The EU can proactively engage in this process by widely disseminating the lessons which have been learned from the EU ETS, lessons which are particularly important as the global regime continues to evolve.[61]

It is increasingly recognised that the EU ETS has emerged as an influential blueprint for other countries considering emissions trading as a climate

59. For example, in the context of passport and immigration controls and the Schengen area, EFTA Member States are already more fully integrated than some EU Member States. Ireland and Britain negotiated opt-outs from the Schengen accord and retain a distinct Common Travel Area separate from other EU Member States.
60. Markus Wråke, Dallas Burtraw, Åsa Löfgren and Lars Zetterberg, 'What Have We Learnt from the European Union's Emissions Trading System?' (2012) 41 Ambio: A Journal of the Human Environment 12, 20.
61. Joseph Kruger, Wallace Oates and William Pizer, 'Decentralization in the EU Emissions Trading Scheme and Lessons for Global Policy' (2007) 1(1) Review of Environmental Economics and Policy 112, 130.

governance tool.[62] South Korean policy-makers, for example, carefully studied the EU ETS in advance of launching their own emissions trading scheme in 2015 which likely explains why, as Oh and colleagues have observed, '[s]imilarities between the EU ETS and the [South Korean emissions trading scheme] are easily found'.[63] It remains crucial, however, that the EU continues to emphasise the importance of environmental integrity by making it clear that schemes which wish to link to the EU ETS are consistent with the core convergence criteria.

As Section 2.2.3 has explained, linkage by degrees accommodates multi-speed incrementalist pathways towards direct linkage by fostering the gradual complementarity required between different trading schemes. It is possible that the commitment of partnering schemes to a shared over-arching decarbonisation objective will translate into a degree of organic complementarity and there is some tentative evidence of this. Sterk and Schüle have already noted that 'some emerging regional schemes are broadly compatible with the EU ETS'.[64] However misplaced confidence in such organic complementarity would be imprudent. If a global interconnected system of emissions trading schemes remains a priority, then it is crucial to establish frameworks and procedures to promote the harmonisation of core convergence criteria.[65] The fostering and maintenance of this necessary degree of complementarity – achieved through implementation of the core convergence criteria – is not likely to result from the alignment of a common environmental commitment alone. Instead it will require continuing close coordination between regulatory authorities. This means that synchronisation of core convergence criteria is best conceived as a process, rather than an event, and the architecture facilitating such compatibility must acknowledge this reality.

3.2 The Threshold for Identifying Core Convergence Criteria

The threshold for classification of a design feature as a core convergence criterion is inextricably linked to the fundamental over-arching carbon reduction objective of emissions trading. Consequently, the governing rule must require that any divergence between schemes' design features which could compromise the environmental integrity objective is unacceptable. It is this

62. This has proven a double-edged sword. For example, continuing price instability in the EU ETS has also 'unsettled' other countries which had been inspired by the EU ETS: see Jørgen Wettestad and Torbjørg Jevnaker, 'The EU's Quest for Linked Carbon Markets: Turbulence and Headwind' in Todd L Cherry, Jon Hovi and David M McEvoy (eds), *Toward a New Climate Agreement: Conflict, Resolution and Governance* (Routledge 2014) 266, 274.
63. Hyungna Oh, Junwon Hyon and Jin-Oh Kim, 'Korea's Approach to Overcoming Difficulties in Adopting the Emission Trading Scheme' Climate Policy (forthcoming).
64. Wolfgang Sterk and Ralf Schüle, 'Advancing the Climate Regime through Linking Domestic Emission Trading Systems' (2009) 14 Mitigation and Adaption Strategies for Global Change 409, 413.
65. Türk, Mehling, Flachsland and Sterk (n 19) 355.

fundamental rule of environmental integrity which governs the identification of core convergence criteria. In the context of linkage, environmental integrity requires defining core convergence criteria to ensure that directly linked trading schemes could not lead to fewer emissions reductions than if each scheme had continued to operate independently.

Additional principles to govern consideration of how and whether to link trading schemes, beyond environmental integrity, have also been recognised in the literature: Mace and Anderson, for example, have specifically identified three such principles, including institutional capacity, economic efficiency, and equity.[66] However, these additional principles, whilst certainly of relevance in *guiding* trading schemes towards linkage, should not prove *determinative* in assessing whether linkage is appropriate. Instead, this article emphasises the supremacy of environmental integrity as a governing rule, not merely as one guiding principle amongst many. As such, institutional compatibility considerations should be understood as ancillary to the governing rule and could, under certain conditions, prove necessary to ensure the maintenance of environmental integrity.[67] In such scenarios, environmental integrity remains the touchstone governing rule.

Direct linkage should theoretically unlock enhanced economic efficiencies, whilst likely facilitating the incremental construction of a climate governance framework which, in a manner resonant of Petsonk's call to develop 'docking stations', could facilitate and incentivise access to emissions trading infrastructures.[68] For example, in the context of linkage agreements, a docking station could include provisions which welcome the participation, in the new agreement's linked carbon market, of any state (or, indeed, regional entity) willing to comply with the core convergence criteria. However, the importance and influence of equity and fairness in constructing such climate governance arrangements should not be understated and challenge policy-makers beyond the discrete context of emissions trading. There often exists an asymmetric power relationship between the importer and the exporter of environmental policies, usually in the form that the 'weaker' actor wishes to gain resources from the 'stronger' one who can then impose access conditions, including the importation of a particular policy.[69] This political reality reflects the fundamentally

66. Mace and Anderson (n 2) 217.
67. For example, it is possible that the absence of a sufficiently robust institutional framework could undermine the environmental integrity of the EU ETS, but this ultimately translates into a concern regarding the environmental rigour of the scheme, even if institutional capacity may be the source of such a potential environmental deficiency.
68. Annie Petsonk, '"Docking Stations": Designing a More Welcoming Architecture for a Post-2012 Framework to Combat Climate Change' (2009) 19 Duke Journal of Comparative and International Law 433.
69. Kerstin Tews, 'The Diffusion of Environmental Policy Innovations' in Gerd Winter (ed), *Multilevel Governance of Global Environmental Change: Perspectives from Science, Sociology and the Law* (Cambridge University Press 2011) 227, 229.

unequal nature of international relations. Indeed, as Tucker observed, '[t]he history of the international system is a history of inequality *par excellence*'.[70] Yet the nature of climate change, both with respect to the uneven historic responsibility for emissions and the likely uneven distribution of the consequences of such catastrophic climate change, presents very real and challenging questions concerning equity and fairness. Such inequalities are discernible in regional relationships too. There are, for example, inequalities in the diffusion of environmental regulatory practices within the EU and Kern, Jörgens and Jänicke have noted that 'policy innovations initiated by smaller [EU] countries often determine behaviour *only* when larger and more influential countries like Germany or France adopt them as was the case with the diffusion of CO^2/energy taxes'.[71] This is not to underplay the importance of principles of equity and fairness in climate law generally and emissions trading specifically, but rather to re-emphasise the exigency of progress towards the incremental construction of an effective climate governance architecture by identifying minimum thresholds for establishing linkages.[72]

Theoretically, the suggested governing rule of environmental integrity is sound. It posits that the linked trading schemes should not lead to fewer emissions reductions than if the EU ETS and the proposed partner scheme had continued to operate independently. It is fortified by the premise that the primary purpose of deploying emissions trading as an environmental regulatory tool is an instrumentalist confidence in the contribution which it can make to the carbon reduction objective. The governing rule also encompasses institutional compatibility concerns where such circumstances may impact upon maintaining the environmental integrity of the EU ETS. Whilst the vision of an international network of linked trading systems is actively promoted by the EU as a core objective of its climate governance strategy, it is critically important that this quest does not sacrifice the core environmental objective on the altar of political expediency. Therefore, in the absence of compliance with the core convergence criteria, direct linkage should not occur.[73] Such an approach is not without risk: by holding firm to the core convergence criteria, the EU ETS could

70. Robert Tucker, *The Inequality of Nations* (Basic Books 1977) 8, but Tucker's perspectives regarding the futility of efforts to rebalance the international system are more contentious.
71. Kristine Kern, Helge Jörgens and Martin Jänicke, 'The Diffusion of Environmental Policy Innovations: A Contribution to the Globalisation of Environmental Policy' (2001) Social Science Research Centre for Berlin (WZB) Discussion Paper FS II 01–30, 23 (emphasis added).
72. The importance of continued research to elaborate and frame the challenges of promoting equity and fairness in climate governance is fundamental in the search for durable governance arrangements.
73. Importantly, such compliance is a *continuing* process and necessarily must be subject to regular review.

be locked out of early attempts to construct a globally linked scheme.[74] Whilst this concern is real and must not be viewed complacently, there is an overarching obligation on the EU to ensure that the very raison d'être for adopting emissions trading as the EU's climate tool of preference is not compromised by efforts to more rapidly construct a climate governance framework. Such a trade-off would likely prove, particularly in the medium and longer term, a Faustian bargain with only illusory gains. In fact, this concern underscores the centrality of linkage by degrees in advancing incremental convergence.

The governing EU legislation, particularly the EU ETS Directive, necessarily provides the starting point to define core convergence criteria insofar as the provisions of the directive impose mandatory prerequisites for direct linkage which, in the absence of legislative amendment, cannot be overlooked. The directive explicitly advocates the prospect of linkage consistent with established EU political sentiment promoting the contribution of emissions trading to climate governance. For example, Article 25(1) provides that agreements '*should* be concluded with third countries listed in Annex B to the Kyoto Protocol which have ratified the Protocol to provide for the mutual recognition of allowances between the Community scheme and other greenhouse gas emissions trading schemes'.[75] However, this endorsement is not unconditional. Article 25(1a), as inserted by Directive 2009/29/EC, limits the scope of such linkage to '*compatible mandatory* greenhouse gas emissions trading systems with *absolute emissions caps* established in any country or in sub-federal or regional entities'.[76] As such, Article 25(1)(a) may be viewed as both expansive and constraining. Through the conditional language of Article 25(1)(a), the EU imposes threshold criteria for potential partner schemes: references to 'compatible', 'mandatory', and 'absolute emissions caps' suggests a legislative intention that linkage is not always desirable. These limitations are significant and will be unpacked further in Section 3.3. Yet, the EU ETS Directive also reassuringly provides that the range of potential linkage partners includes schemes with diverse geographic coverage and not merely national schemes. This raises the prospect of identifying appropriate linking partners beyond the state at both the sub-national and regional level and represents a significant expansion of the text from that of the original directive which restricted linkage to 'third countries'. It may be surmised that an influential factor prompting this amendment had been the emergence of regional emissions trading schemes in the United States, particularly given continued Congressional inertia regarding a federal scheme.

3.3 The Core Convergence Criteria

This Section will establish the proposed core convergence criteria which must be present before a direct linkage is implemented. It is important to recall that

74. Gilbert (n 55) 916.
75. EU ETS Directive, art 25(1) (emphasis added).
76. EU ETS Directive, art 25(1)(a) (emphasis added).

this is not a quest for perfectly identical emissions trading schemes, but rather a process of ensuring that the necessary de minimis degree of alignment has occurred before formal direct linkage is operationalised.[77] Whilst linkage by degrees towards the implementation of direct linkage does not presume to provide a normatively superior alternative to a global agreement leading to the creation of an international cap-and-trade system, the listless nature of climate negotiations to date also amply demonstrates the need to achieve measurable progress, where possible, beyond the multilateral context.

The EU ETS Directive, by imposing the restriction that linkage is permissible only with 'compatible' trading schemes, necessarily provides the starting point for any enquiry to define core convergence criteria.[78] Significantly, such a starting point does not preclude the possibility of normatively reimagining the contours imposed by the legislation, but instead acknowledges the relevance and influence of the present legislative language in seeking to ascertain and define core convergence criteria. Consequently, Article 25(1)(a) identifies specific criteria indicative of 'compatibility': for example, a candidate emissions scheme must contain 'absolute emissions caps' and must be 'mandatory'. As such, these design features are defined below as the first and second core convergence criteria. Whilst the language of Article 25(1)(a) is silent as to whether these design features constitute the only criteria of compatibility, a teleological interpretation of the text, as has been favoured by the European Court of Justice, tends to suggest that any meaningful definition of compatibility must extend beyond requiring that a candidate scheme is mandatory with an absolute emissions cap.[79]

3.3.1 Absolute Emissions Cap

The text of Article 25(1)(a) provides the first core convergence criterion: any potential partner scheme must impose an absolute emissions cap. As this Section will elaborate, there are a number of additional core convergence criteria which, if absent, could undermine the integrity of the EU ETS. That said, legislative emphasis on the importance of an absolute emissions cap is not misplaced.

In this context, it is relevant to recall that the implementation in the EU ETS of a single Union-wide absolute cap was slow, litigious, and far from

77. Burtraw and colleagues (n 19) 10.
78. EU ETS Directive, art 25(1)(a).
79. For example, in the seminal case, *Van Gend en Loos*, the ECJ emphasised that it is necessary to consider 'the spirit, the general scheme and the wording'. In the *CILFIT* case the ECJ affirmed that 'every provision of Community law must be placed in its context and interpreted in the light of the provisions of EC law as a whole, regard being had to the objectives thereof and to its state of evolution at the date on which the provision in question is to be applied'. See Case C–283/ 81 *Srl CILFIT and Lanificio di Gavardo SpA v Ministry of Health* [1982] ECR 252, para 20. See also Nial Fennelly, 'Legal Interpretation at the European Court of Justice' (1996) 20(3) Fordham International Law Journal 656.

straightforward. In fact, recognition of the fundamental importance of an absolute cap came late in the day and it was only after the first two phases of the EU ETS, during which concerning discrepancies regarding Member States' NAPs surfaced, that the necessity of such a single EU-wide cap gained widespread acceptance. The Amending Directive replaced national Member State caps with an EU-wide cap and for the first time in 2013 the cap across the EU (and Norway, Liechtenstein, and Iceland) represented a single Union-wide cap set at 2,084,301,856 allowances, rather than the aggregate of Member States' individual caps.[80] Under Article 9 of the Directive, for every year during Phase III this cap will decrease by a linear factor of 1.74 per cent of the average total quantity of allowances issued annually during Phase II from 2008–2012.[81] Due to the operation of this mechanism, by 2020 emissions from fixed installations will be 21 per cent lower than in 2005.[82] The operation of this decreasing cap mechanism is fundamental to the fabric of the EU ETS and the absolute emissions cap requirement in Article 25(1) is best understood as a commitment to preserve this functionality. Given the tortuous history which led to the creation of such a single EU-wide cap, ensuring that this cap is not compromised is critical to the functioning of the EU ETS. The amended EU ETS Directive permits only very limited intervention in the market in 'the event of excessive price fluctuations'.[83]

The implementation of direct linkage between the EU ETS and a scheme which permitted cost-containment interventions in the market such as 'price ceilings', often also termed 'safety valves', would seriously undermine the operability of the EU ETS in a number of ways. Such mechanisms provide for the release of additional allowances to the market by the scheme regulator once a certain upper price threshold is breached without regard to an absolute cap. In practice, this would effectively result in the importation of the linked scheme's price ceiling into the EU ETS. As we can expect linkage to generally result in a blending of design features, such a price ceiling would inevitably increase emissions in the EU ETS, as extra allowances freely trade between schemes, gradually rendering the absolute emissions cap obsolete.

The extent of potential distortions on the EU ETS is difficult to predict and will depend to a large extent on market factors in the linked scheme and how a price ceiling is implemented. For example, the potential increase in the supply of allowances exported to the EU ETS is limited to the supply of permits in the linked scheme: this suggests that the greater the number of allowances in circulation in the linked scheme, then the more material the potential distortive effects of a price ceiling on the EU ETS. However, any release of additional

80. Directive 2009/29/EC of the European Parliament and of the Council of 23 October 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community [2009] OJ L140/63.
81. In absolute terms this equates to an annual reduction in allowances by 38,264,246.
82. Article 9 mandates that the Commission review the linear factor from 2020 with a view to the adoption of a decision by 2025.
83. EU ETS Directive, art 29a.

allowances in a linked scheme will also affect the revenue accruing to the government there, presuming that the additional allowances are auctioned (rather than grandfathered) at the trigger price. It is likely that the revenue implications alone – quite distinct from the potential adverse impacts on the environmental integrity objective – would also raise considerable concerns. In the absence of an absolute emissions cap, it is reasonable to expect that such revenue-related political concerns could, irrespective of Article 25(1), present a serious obstacle to linkage.[84]

Unsurprisingly, the prohibition contained in Article 25(1) enjoys broad support in the literature. Gilbert has emphasised that the environmental stringency of individual schemes is 'absolutely key in determining the success or failure of a linking initiative',[85] whilst Fischer's research has demonstrated that '[w]ithout some policy of adjustment or a switch to a fixed cap, allowing trade between a rate-based emissions program and a cap-and-trade program will tend to lead to an expansion of overall emissions'.[86] Sterk and Schüle have noted that '[o]ne of the main advantages of cap-and-trade emission trading is the ability to precisely define the environmental outcome … [but] price caps and safety valves crack the cap'.[87] Meanwhile, Goers and Pflüglmayer have described the potential consequences of establishing a linkage of the EU ETS with a scheme without an absolute emissions cap as 'disabling ecological effectiveness' and, for this reason alone, have suggested exclusion of Alberta's emissions trading scheme from further consideration as a potential linkage partner.[88]

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84. A separate question, beyond the focus of this article, concerns the appropriateness of regulatory intervention in an emissions trading scheme. For example, Commission Regulation No 176/2014 has postponed the auctioning of 900 million allowances due to depressed demand from the years 2013–15 until 2019–20. Such 'back-loading' of auctions does not detrimentally affect the maintenance of the absolute cap and therefore does not breach the governing rule of environmental integrity. In the context of direct linkage, it is suggested that such intervention could only occur subject to consultations with and (potentially) the consent of partner regulatory authorities.
85. Gilbert (n 55) 914.
86. Carolyn Fischer, 'Combining Rate-Based and Cap-and-Trade Emissions Policies?' (2003) 3(S2) Climate Policy S89, S101.
87. Sterk and Schüle (n 64) 419.
    As a practical matter, Sterk and Kruger have elaborated: 'through linking a system without price controls to a system with price control mechanisms, the former would effectively cede control over its allowance price and emissions to the latter. It does not seem likely that the former would be willing to pursue such a policy.' See Wolfgang Sterk and Joseph Kruger, 'Establishing a Transatlantic Carbon Market' (2009) 9 Climate Policy 389, 397.
88. Sebastian Goers and Barbara Pflüglmayer, 'Post-Kyoto Global Emissions Trading: Perspectives for Linking National Emissions Trading Schemes with the EU ETS in a Bottom-Up Approach' (2012) 3 Low Carbon Economy 69, 74.

The Alberta emissions trading scheme, which has been in operation since 2007, aims to achieve an annual reduction of energy intensity by 12 per cent; but it does not impose an absolute cap. In fact, under the Alberta scheme it is possible that emissions could increase, as long as any such increase is justified by an increase in production or GDP and the emissions have stayed below the relative target. Perversely, entities under the scheme with relative targets may even have good reason to increase their emissions since they will receive additional allowances the more they produce, whereas entities in a scheme with a fixed cap must confront higher costs for any increase of emissions. Any such phenomenon in a linked context would inflate the amount of allowances available in the EU ETS which, in turn, would confound progress towards achievement of the core environmental integrity objective. It is no surprise then that scholars have warned against the EU negotiating 'lowest common denominator agreements' in environmental terms'.[89]

More fundamentally the choice of a design architecture characterised by relative targets (or otherwise modest environmental targets) reflects a political choice to subordinate the environmental objective to the minimisation of participants' compliance costs. Such divergence, perhaps most evident in technical design features such as the presence or absence of an absolute cap, clearly raise more general concerns regarding the comparable ambitiousness – and resulting compatibility – of the climate policy outlook of individual schemes. Without sufficiently ambitious environmental targets set by public regulation there remains a risk that 'an efficient servant will become an unjust and unsustainable master'.[90] In any event, the prohibitive language of Article 25(1) means that there is no scope for linkage where a partner scheme does not provide for an absolute emissions cap. However, it is also clear that any analysis of compatibility must reach beyond the presence or absence of an absolute emissions cap in a partner scheme.

3.3.2 Mandatory Targets

In addition to the absolute cap requirement, Article 25(1) further requires that any candidate linking scheme must be 'mandatory'. The distinction between what have been categorised as 'compliance markets' and 'voluntary markets' is critical.[91] Whilst both forms of markets may impose absolute caps, compliance markets are mandatory, in the sense of Article 25(1), by public regulatory underpinning. Voluntary markets are based on private law and do not rely on public regulation to generate demand. The fact that these markets continue

89. Gilbert (n 55) 916.
90. Herman Daly, 'Free Market Environmentalism: Turning a Good Servant into a Bad Master' (1993) 6(2) Critical Review 171, 173.
91. Eva Lövbrand and Johannes Stripple, 'Disrupting the Public-Private Distinction: Excavating the Government of Carbon Markets Post-Copenhagen' (2012) 30(4) Environment and Planning C Government and Policy 658, 662.

to exhibit organic growth without any government mandate has been one of the more interesting, and indeed surprising, features of the emerging emissions trading landscape.[92]

The rationale for and emergence of voluntary markets provides salient insights into the complex influences driving the decarbonisation agenda. The emergence of such markets, when considered under an orthodox economics or corporate behaviour lens, seems counter-intuitive, almost illogical. Yet as consumer awareness surrounding climate change has developed, demand for action by consumer product and services companies to reduce carbon emissions or to offset them has grown dramatically.[93] The fact that climate science has gradually moved from a discipline openly contested to one which has now secured a settled consensus has also contributed to moving carbon reduction measures onto the centre ground of political and policy debates.[94] Economic analyses demonstrating that the costs of reducing carbon emissions are far lower than the unpredictable and potentially vast costs of catastrophic climate change have also contributed to the emergence of a new orthodoxy within a corporate context which is responsive to the realities of climate science. Shareholders and investors are also putting increasing pressure on corporate management to focus on carbon reduction.[95] This is less influenced by altruistic environmental concerns and is more likely the product of a growing recognition that ignoring the potential risks would be fiscally irresponsible.[96] This confluence of diverse factors has influenced the emergence of a new 'climate capitalism' which, whilst especially evident within mandatory compliance markets, also extends well beyond those confines to the evolution of voluntary markets.[97]

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92. Scott Deatherage, *Carbon Trading Law and Practice* (Oxford University Press 2011) 64.
93. ibid 65.
94. Naomi Oreskes, 'The Scientific Consensus on Climate Change: How Do We Know We're Not Wrong?' in Joseph DiMento and Pamela Doughman (eds), *Climate Change: What It Means for Us, Our Children, and Our Grandchildren* (MIT Press 2007) 65.
    Of course, this consensus has travelled further in some contexts than others: Brad Cooper, 'Climate Science, Like Evolution Before, a Kansas Legislative Controversy' (The Wichita Eagle, 1 March 2013) <http://www.kansas.com/2013/03/01/2697018/climate-science-like-evolution.html> accessed 2 May 2017.
95. Consider, for example, the Exxon Mobil shareholder revolt in 2008 during which 19 institutional investors with 91 million shares worth $8.6 billion tabled a motion (albeit unsuccessfully) requesting Exxon's board to address climate change risks and opportunities.
96. Felicia Jackson, *Conquering Carbon: Carbon Emissions, Carbon Markets, and the Consumer* (New Holland Publishers Ltd 2009) 59.
97. The term is Newell and Peterson's and does not endorse a 'blind faith in capitalism to adequately address climate change'. Instead, the authors emphasise the corporate behavioural changes (including the development of voluntary markets) which suggests that the foundations of a decarbonised economy are emerging. See Peter Newell and Matthew Peterson, *Climate Capitalism: Global Warming and the Transformation of the Global Economy Consumer* (Cambridge University Press 2010) 1–11.

The contribution of voluntary markets in shaping the climate governance landscape may be substantial beyond operating as a testing ground for industry before mandatory trading. Peters-Stanley and Yin have observed that '[w]hat the voluntary markets lack in size, they make up for in flexibility – spinning off innovations in project finance, monitoring, and methodologies that also influence regulatory market mechanisms'.[98] The voluntary markets have been credited with spawning their own standards, registries, and project types beyond the scope of existing compliance market mechanisms. As a result, it has been noted that governments have increasingly turned to voluntary carbon market mechanisms – particularly standards and registries – to inform the development of or serve as compliance instruments themselves.[99] Such diverse and experiential nodes of governance further demonstrate the complexity of the climate governance mosaic. Yet, the maintenance of complementarity in a world awash with different approaches raises significant governance challenges. Whilst climate governance experiments continue to shape how states respond to climate change, the voluntary carbon markets, in particular, have attracted significant criticism based on perceived lax quality control. This concern is intimately connected with questions of monitoring, reporting, and verification which shall be separately evaluated later in this Article, but the perception of voluntary markets as an unrestricted version of compliance markets has given rise to characterisations of such exchanges as 'buyer-beware' markets.[100]

From the perspective of Article 25(1), voluntary emissions trading schemes present serious challenges to the EU ETS. To be a suitable partner for linkage, the candidate trading scheme should demonstrate a clear commitment to emissions trading in the medium to long term. From the perspective of a well-functioning market capable of delivering some degree of certainty to its participants, linking would be risky if a scheme had no clarity on a succession plan. Whilst this would also be the case in compliance markets with an early expiration date and no clear commitment in succeeding years beyond such a date, the innately provisional nature of voluntary markets adds further doubt

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This perspective is highly contentious. Böhm, Misoczky and Moog have argued that carbon markets 'are unlikely to transform capitalist dynamics in ways that might foster a more sustainable global economy': see Steffen Böhm, Maria Ceci Misoczky and Sandra Mogg, 'Greening Capitalism? A Marxist Critique of Carbon Markets' (2012) 33(11) Organisation Studies 1617.

98. Molly Peters-Stanley and Daphne Yin, *Maneuvering the Mosaic: State of the Voluntary Carbon Markets 2013* (Forest Trends' Ecosystem Marketplace and Bloomberg New Energy Finance 2013) 5.
99. ibid.
100. Deepanshi Chaudhry, 'A Brief Study of Voluntary Carbon Markets, Recent and Future Trends with Special Focus on India' (July 2008) <http://www.researchgate.net/publication/228311270_A_Brief_Study_of_Voluntary_Carbon_Markets_Recent_and_Future_Trends_with_Special_Focus_on_India> accessed 2 May 2017.

about the continuity of any such linkage. This would create serious concerns amongst EU ETS participants about the permanence of the link and could ultimately diminish the liquidity of allowances generated in the linked scheme. Clearly in these circumstances Article 25(1) is correct to consider the 'mandatory' element of a candidate scheme as a core convergence criterion.

3.3.3 Unconstrained Borrowing

Emissions trading schemes which permit borrowing allowances from future trading phases may pose particular risks for the environmental integrity of the EU ETS. Borrowing during the life of a particular compliance phase is implicitly permitted in the EU ETS by virtue of the lag-time between satisfaction of the previous year's compliance obligations and the allocation of the next year's allowances. For example, allowances are allocated by 28 February of each year, whilst allowances must be surrendered equal to the total (verified) emissions to satisfy with the previous calendar year's trading period by 30 April each year. It is therefore not a case of borrowing *per se* constituting a core convergence criterion, as the structure of the EU ETS provides scope for borrowing, albeit within a relatively narrow window. Article 25(1) is silent with respect to any reference to borrowing and the structure of such a facility in a candidate partner scheme. However, borrowing between trading phases within the EU ETS is not permitted. As such, allowances generated during Phase II which ended in 2012 could not be surrendered for compliance with obligations which now arise during the life of Phase III.

However, unconstrained borrowing could seriously undermine achievement of the carbon reduction goals of the EU ETS to such an extent as to be incompatible with advancing the EU's environmental target.[101] The ability of market actors in one scheme to borrow against periods with an unfixed length, or periods for which allocations have not yet been specified, would undermine the present penalties for non-compliance and undercut the environmental integrity of the EU ETS.[102] In fact, the function of an unconstrained borrowing facility within an emissions trading scheme is more akin in practice to the operation of a price ceiling. However, not only is borrowing from future commitment periods likely to delay carbon abatement but, perhaps paradoxically, high rates of borrowing may even result in escalating future abatement costs. Such a scenario could ultimately result in increased pressure on government to relax emission caps, thereby also imperilling the medium to long term integrity of the environmental objective.[103]

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101. Emilie Alberola and Julien Chevallier, 'European Carbon Prices and Banking Restrictions: Evidence From Phase I (2005–2007)' (2009) 30(3) Energy Journal 51.
102. Mace and Anderson (n 2) 219.
103. Catherine Boemare and Philippe Quirion, 'Implementing Greenhouse Gas Trading in Europe: Lessons from Economic Literature and International Experiences' (2002) 42(2) Ecological Economics 213.

Borrowing may also give actors with high abatement costs an incentive to delay costly investments in clean technologies by borrowing allowances from future periods, and to concentrate emissions in early periods. Consequently, unrestricted borrowing may aggravate environmental harm by facilitating the concentration of the emissions stream in the earlier years of a trading phase.[104] In order to maintain the environmental effectiveness of linked schemes, any provisions permitting borrowing require restrictive provisions limiting its influence, the precise crafting of which necessarily involves close collaboration between the Commission and any candidate linking partner scheme's authority.

3.3.4 Monitoring, Reporting, and Verification of Emissions (MRV)

The EU has emphasised that the 'complete, consistent, transparent and accurate monitoring and reporting of greenhouse gas emissions are fundamental for the effective operation' of the EU ETS.[105] This reflects Articles 14 and 15 of the EU ETS Directive, which address the MRV of emissions data. The need for greater EU uniformity with respect to MRV became clear during Phases I and II. The original language of the EU ETS Directive had given 'considerable flexibility to both installations and to Member States'.[106] The high level of decentralisation and the significant degree of discretion for Member States was widely recognised by scholars during the pilot phase and it was widely acknowledged that this might well pose a challenge in achieving the degree of consistency required to provide trust in the scheme's MRV rules.[107] Kruger and Pizer identified the crux of the problem: '[l]eft unresolved is the question of who will resolve inconsistencies if different Member State governments or the third party verifiers they hire vary in their interpretations of EU monitoring or verification guidelines'.[108]

In the context of the EU, perhaps this should not be surprising. Significantly different legal systems, enforcement cultures, and administrative capabilities across the EU have created a variable geometry concerning implementation. This was particularly evident during the pilot phase of the EU ETS with Slovakia failing to draft a satisfactory NAP, whilst the NAPs of Poland and the Czech Republic failed to meet the Commission's deadline. However, such concerns regarding administrative capacity, whilst identified by some scholars as particularly important due to the EU's expansion, are not restricted to the then-recent

104. Julien Chevallier, 'Banking and Borrowing in the EU ETS: A Review of Economic Modelling, Current Provisions And Prospects for Future Design' (2012) 26(1) Journal of Economic Surveys 157, 172.
105. Commission Regulation (EU) No 601/2012 of 21 June 2012, on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council [2012] OJ L181/30.
106. Kruger, Oates and Pizer (n 61) 124.
107. Joseph Kruger and Christian Egenhofer, 'Sustainable Development Law and Policy' (2006) 6(2) Sustainable Development Law and Policy 2, 6.
108. Joseph Kruger and William Pizer, 'Greenhouse Gas Trading in Europe: The New Grand Policy Experiment' (2004) 36(8) Environment 8, 15.

accession states alone.[109] Doubts have also been expressed, for example, regarding the ability of the Spanish authorities to translate policy support for stringent monitoring into effective climate action.[110]

Achieving consistency, however, is a permanent challenge for the EU and it is not surprising that this has equally proven the case in the context of emissions trading generally and MRV particularly. However, incremental harmonisation has become the EU's tried and tested route map. Regulation 601/2012 concerning monitoring and reporting promotes such harmonisation, but the prospect of formal direct linkage would significantly sharpen concerns related to MRV. For example, the differences in cultures of enforcement and administrative capacity within the EU is only a fraction of what exists if one were to compare the EU as a whole to Russia or China.[111] Whilst many commentators have encouraged developing countries with potentially weaker legal and economic institutions to embrace market mechanisms,[112] an uneven approach to MRV could create unfair competitive advantages for firms in states with less robust enforcement regimes and discolour the metric by which progress towards the carbon reduction objectives is measured. The capacity to conceal or obstruct progress, thereby endangering the environmental integrity of the EU ETS, is of sufficiently serious concern to warrant the inclusion of MRV as an important core convergence criterion.

Unlike other core convergence criteria, an assessment of MRV compatibility requires a value determination along a continuum of compliance. This should not be considered a negative quality: since linkage is likely to happen in an incrementalist manner, this creates the necessary space for dialogue and discussion regarding MRV and how best to ensure that one scheme's approach to MRV has the confidence of its potential linkage partner. Moreover, the EU's successful implementation of direct linkage between the EU ETS and Norway has demonstrated that MRV provisions need not be identical. For example, the Norwegian emissions trading scheme requires participating entities to monitor and report their emissions on an annual basis but, unlike the EU ETS, does not require independent verification of an entity's emissions data.[113] Instead, it is

109. Kruger, Oates and Pizer (n 61) 118.
110. J David Tàbara, 'Spain: Words that Succeed and Climate Policies that Fail' (2003) 3(1) Climate Policy 19.
111. Kruger, Oates and Pizer (n 61) 128.
112. Ruth Bell and Clifford Russell, 'Environmental Policy for Developing Countries' (2002) 18(3) Issues in Science and Technology 63 and Allen Blackman and Winston Harrington, 'The Use of Economic Incentives in Developing Countries: Lessons from International Experience with Industrial Air Pollution' (2000) 9(1) Journal of Environment and Development 5.
113. Chapter 4 (s 16), Act of 17 December 2004 No 99 Relating to Greenhouse Gas Emission Allowance Trading and the Duty to Surrender Emission Allowances. See Norwegian Government, 'Acts and Regulations' <https://www.regjeringen.no/en/dokumenter/ greenhouse-gas-emission-trading-act/id172242/> accessed 2 May 2017.

open to the Norwegian regulator, on a case-by-case basis, to 'decide that the emissions report from an operator shall be verified by an independent third party before it is submitted'.[114] The absence of a mandatory requirement for independent verification has not been considered material by EU policy-makers and has not obstructed the implementation of direct linkage. Consequently, approximate equivalence, from an MRV perspective, seems the most sensible way to satisfy this convergence criterion.

As the process of identifying and elaborating core convergence criteria demonstrates, progress on MRV compatibility is one theme in the search for a suitable framework to integrate fragmented trading efforts into a more coherent global approach. Ideally peer review of the EU's experience with MRV will promote learning and foster the gradual dissemination of best practice, particularly as progress towards linking emissions trading schemes is likely to remain fragmented and multi-speed. Policy-makers in emerging emissions trading schemes are often keen to learn from the EU and policy diffusion through learning offers real opportunities for the EU to emphasise the importance of early discussions regarding MRV compatibility.[115] The maintenance of a zone of compatibility, which necessarily entails the promotion of complementarity and avoidance of the development of conflictive core design features, must be a key focus for EU policy-makers and decision-makers in the years ahead.

3.3.5 Equivalent Rules Governing Fungibility of Carbon Credits

The EU currently permits, with restrictions, regulated entities to surrender carbon credits purchased from CDM projects, Certified Emission Reductions (CERs), to meet their domestic EU ETS commitments.[116] Whilst the CDM is not the only offset programme in existence, it is certainly the most significant. As of 31 December 2016, over 7,750 projects have been approved since operationalisation of the CDM and more than 1.75 billion offset credits have been issued.[117] During Phase II of the EU ETS, Member States retained discretion to decide the rules relating to the usage of CERs. Consequently, each Member State individually determined the percentage of offsets allowed (as a percentage of total allowances). The range of flexibility varied markedly between Member States from 0 per cent in Estonia to 20 per cent in neighbouring Lithuania (and Germany and Spain).[118] Moreover, seven Member States (Germany, Spain, Italy,

114. ibid Chapter 4 (s 17).
115. Betsill and Hoffmann (n 52) 100.
116. Commission Regulation (EU) No 1123/2013 of 8 November 2013 on determining international credit entitlements pursuant to Directive 2003/87/EC of the European Parliament and of the Council [2013] OJ L299/32.
117. Clean Development Mechanism, 'CDM Insights: Project Activities' (31 December 2016) <http://cdm.unfccc.int/Statistics/Public/CDMinsights/index.html> accessed 2 May 2017.
118. Raphael Trotignon, 'Combining Cap-and-Trade with Offsets: Lessons from the EU–ETS' (2009) 12(3) Climate Policy 273, 276.

France, Poland, the UK and the Czech Republic) accounted for over 75 per cent of total use across the EU.[119] The Commission has since moved to harmonise the use of offsets within the EU.[120] As a result, the exact amount eligible for use per operator until 2020 depends on whether or not the operator is a new entrant, but existing operators may only use CERs either up to the amount allowed in the period from 2008 to 2012 or to an amount corresponding to a maximum of 11 per cent of its allocation in the period from 2008 to 2012, whichever is the higher.[121]

As the experience of the EU ETS has demonstrated, offset credits have matured to become a stable feature of the carbon trading landscape. However, there remains the potential for significant divergence between the rules governing their use across different emissions trading schemes. This is clearly a material consideration in circumstances where allowances and credits are fungible since unrestricted trading between linked schemes would permit credits generated in one scheme to enter the other scheme, even if this was not consistent with the latter scheme's recognition rules. Whilst it would remain open to the EU ETS (or any partner emissions trading scheme) to limit the quantity and quality of allowances from the CDM or, alternatively, to apply an exchange rate, this would not entirely resolve the supply-and-demand dynamics resulting from the free circulation of credits in the linked partner scheme.

Substantial divergence between rules governing fungibility of carbon credits could materially impact pricing in linked schemes and ultimately disrupt the operation of a scheme's absolute cap.[122] As such, rules governing recognition of offsets which may be surrendered for compliance purposes are inextricably connected to preserving the environmental integrity of an emissions trading scheme. Consequently, it is appropriate to categorise the implementation and maintenance of equivalent mechanisms of fungibility of offset credits as a core convergence criterion. The importance of this classification as a core convergence criterion becomes evident by surveying the current diversity of approaches to mechanisms governing fungibility of offset credits. Draft

119. ibid.
120. Commission Regulation (EU) No 1123/2013 (n 116).
121. ibid, art 1(1).
122. Moreover, as Sterk and Kruger have noted, there may be serious political repercussions from such commingling of credits and allowances in the absence of cross-compatibility: see Sterk and Kruger (n 87) 395.
It is recognised that given the potential for disruption to a scheme's overall emissions cap, it is conceptually legitimate to categorise compatibility of rules governing the recognition of offsets as a subset of the first core convergence criterion which requires the presence of an absolute emissions cap in any candidate partner scheme. However, it is suggested that the dynamic and materially relevant nature of offset schemes, which also constitute indirect linkages in their own right (as identified in Section 2.2.2), merits particular recognition as a distinct core convergence criterion.

legislation for federal trading schemes in the United States, for example, such as the Waxman-Markey proposals and the Boxer-Lieberman-Warner proposals, had envisaged permitting the use of offset credits generated from carbon sinks and domestic offset initiatives, both of which are not recognised for compliance purposes in the EU ETS. Separately, South Korea's emissions trading scheme only recognises offset credits generated from domestic projects and the South Korean government has not yet clarified if it will permit linkage with the CDM or any successor mechanism developed under the auspices of the Paris Agreement.[123]

It is therefore unsurprising that the importance of equivalent rules on the fungibility of carbon credits has been recognised by the Commission which has explicitly acknowledged that the EU should seek 'common ground' with other countries to 'ensure a coherent transition'.[124] This is particularly so given that, regardless of the status of multilateral climate negotiations, linkage by degrees between regional and national emissions trading schemes is likely to deepen with offset schemes continuing to constitute a key component of the emerging climate governance mosaic.

4 Devising Architectures to Implement Linkage

The identification of core convergence criteria is fundamental to determining the degree of compatibility necessary to harmoniously advance the underlying environmental rationale of emissions trading. Such a process of identification does not, however, predestine a particular pathway towards full direct linkage. Given that the design of an institutional architecture promoting (and supporting) linkage is not preset, policy-makers must instead engage in dialogue assessing potential future frameworks for linkage. Climate governance has become the province of multiple actors with governance experimentation occurring in multiple areas and at multiple scales. In this sense, climate governance can properly be characterised as multi-actor and multi-scalar.[125] Given this empirical reality of governance processes simultaneously occurring in multiple places and distributed across differing levels of social organisation, the

123. Act on the Allocation and Trading of Greenhouse Gas Permits 2012 (Act No 11419, 14 May 2012), art 29(3) and Enforcement Decree of the Act on the Allocation and Trading of Greenhouse Gas Permits (Presidential Decree No 24180, 15 November 2012), art 38: see Korea Legislation Research Institute (KRLI) Legislative Translation Centre, 'Statutes of the Republic of Korea' <http://elaw.klri.re.kr/eng_service/main.do> accessed 2 May 2017. (Translations provided by the KRLI are not official versions and thus are not equally authentic to the original version in Korean.)

124. Commission, 'Towards a Comprehensive Climate Change Agreement in Copenhagen' (n 6).

125. Harriet Bulkeley and Susanne Moser, 'Responding to Climate Change: Governance and Social Action beyond Kyoto' (2007) 7(2) Global Environmental Politics 1, 8.

focus – as Young might suggest – shifts to 'taking steps to ensure that cross-scale interactions produce complementary rather than conflicting actions'.[126]

The process of identifying core convergence criteria is consistent with the search to allocate specific tasks to the appropriate level since such an endeavour necessarily entails the discovery and recognition of key design features of emissions trading, the compatibility of which must take place at a level beyond that of individual emissions trading schemes. The principle of promoting complementarity requires consideration of how to implement an appropriate architecture to either guard against conflictive actions or, more ambitiously, to actively nurture and facilitate complementarity and ultimately linkage. To put it more bluntly, it is possible here to distinguish a *simple*-complementarity school from a *strong*-complementarity school.[127] For the former, complementarity is essentially defined by the absence of conflict between multiple governance approaches irrespective of parallel progress towards coordination and enhancement of climate governance, much less 'linkage by degrees'. However, the latter is more demanding: it considers that real complementarity must entail progress towards the development and implementation of linkages and that the flailing multilateral vision must not be abandoned, but rather re-imagined as an incremental process of scaling-up.

Whilst such a debate is already underway concerning viable frameworks for configuring climate governance more generally, it is important to reconstruct this discussion in the more discrete context of emissions trading to allow a closer evaluation of the linkage implications of this debate. The process of expanding (or what may, perhaps, critically be conceived as exporting) emissions trading requires achieving a fine balance between maximising avenues for broader participation in climate governance, whilst ensuring that such expanded participation does not undermine the environmental integrity of governance initiatives. Victor, House, and Joy, whilst acknowledging that such bottom-up harmonisation of emissions trading may be 'painfully slow and sprawling',[128] have suggested that such an approach is 'the only way to build

126. Young, 'Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions' (n 20) 266.

127. In this context, this article builds on the analogous bifurcation which Grossman and Leblond have made in the context of European financial integration. Whilst recognising that the recent history of financial integration in the EU can generally be considered a success story, a distinction is drawn between a *simple*-integration school and a *strong*-integration school. For the former, integration is essentially defined by increasing cross-border financial flows of any kind, whereas the latter is more demanding: it considers that real integration must entail convergence not only of prices and rates, but also of business models, governance, refinancing practices and so on: see Emiliano Grossman and Patrick Leblond, 'European Financial Integration: Finally the Great Leap Forward' (2011) 49(2) Journal of Common Market Studies 413, 419.

128. Victor, House and Joy (n 22) 1821.

credible institutions that are essential for markets'.[129] Undoubtedly there are also drawbacks to this approach. It involves a departure from the established principle in international environmental negotiations that 'nothing is agreed until everything is agreed', a principle which has facilitated grand bargains to be struck based on a complex web of concessions across a range of issues and countries.[130] However, the pursuit of a universalist illusion may prove myopic and risk condemning climate governance to glacial progress which – given the urgency of the underlying environmental challenge – is clearly unacceptable. Instead, devising institutions which promote incremental harmonisation by holding out the prospect of the bottom-up formation of a framework with gradual global coverage offers a viable route towards advancing strong complementarity. This is particularly the case in the context of emissions trading and linkage by degrees could present an incrementalist pathway towards fuller integration in the form of direct linkage.

5 Conclusion

This article has argued that the implementation of durable linkage arrangements between emissions trading schemes is possible and desirable, but potential partner schemes must demonstrate compatibility with certain core convergence criteria. It is likely that the importance of linkage will develop further given the continuing absence of any binding post-Kyoto commitment targets. Significantly, the Paris Agreement does not depart from the existing consensus favouring a role for market-based initiatives in climate governance, but rather the language of the Agreement confirms the continuation of such a consensus.[131] Article 6.4, for example, envisages a successor mechanism to the CDM, but it remains to be seen whether this will represent an entirely new mechanism or a 'revamped CDM'.[132] Beyond this innovation, however, the prominent inclusion of market approaches throughout Article 6 'giv[es] them a renewed role in international efforts to combat climate change'.[133]

Despite this renewed role, the emergence of diverging critical design features in candidate partner schemes would seriously impede the contribution of emissions trading to climate governance. At the time of writing, the Chinese

129. ibid 1821.
130. Robert Falkner, Hannes Stephan and John Vogler, 'International Climate Policy after Copenhagen: Towards a "Building Blocks" Approach' (2010) 1(3) Global Policy 252, 260.
131. The contribution of market-based instruments to climate governance has not enjoyed unanimous support and a small number of states, led by Bolivia, have strongly opposed such instruments: see Bodansky (n 12) 307.
132. Torbjørg Jevnaker and Jørgen Wettestad, 'Linked Carbon Markets: Silver Bullet, or Castle in the Air?' (2016) 6(1–2) Climate Law 142, 150.
133. Richard Kinley, 'Climate Change after Paris: From Turning Point to Transformation' (2017) 17(1) Climate Law 9, 11.

government has unveiled plans for a national emissions trading scheme which is expected to launch in the second half of 2017.[134] The implementation of such a scheme by the world's largest carbon emitter could accelerate adoption rates globally for emissions trading schemes.[135] Moreover, the deepening of China–EU dialogue concerning the EU ETS is also particularly positive.[136] However, whilst of potentially huge significance, it is challenging to determine how a national Chinese scheme will look and operate in practice. Inevitably, this has meant that it is not possible to analyse the applicability of the core convergence criteria elaborated in this article to what could yet emerge to be the most significant climate governance initiative to date. Yet the very real concern of potentially diverging design features reinforces the importance of (early) engagement and ideally consensual recognition that certain core convergence criteria must be shared by directly linked schemes. This does not mean that all emissions trading schemes must be identical. Indeed, as has been recognised elsewhere, it is practically impossible for two separate trading schemes to develop which treat their participants exactly equally in economic terms.[137] Nonetheless, the integrity of any emerging global framework, particularly in the context of the evolution of a network of multilateral direct linkages,[138] will only be as secure as the weakest participating scheme. As a result, fostering complementarity between different trading systems remains a fundamental challenge in developing a governance framework which recognises linkage as a prize worth pursuing.

The search for complementarity requires the identification and implementation of core convergence criteria and maintaining such compatibility, particularly as diverse climate governance initiatives develop, has emerged as a critical consideration for scholars and policy-makers. This article has advocated a threshold based on environmental integrity for the designation of a design feature as a core convergence criterion. Environmental integrity, consistent with the underlying instrumentalist rationale for deploying emissions trading, requires defining core convergence criteria to ensure that directly linked trading schemes could not lead to fewer emissions reductions than if each scheme continued to operate independently. Linkage by degrees is advanced as offering an

134. Stian Reklev, 'China National ETS Launch Likely in Second Half of 2017' *Carbon Pulse* (15 March 2016) <http://carbon-pulse.com/17057/> accessed 20 January 2017.
135. Steinar Andresen, Jon Birger Skjærseth, Torbjørg Jevnaker and Jørgen Wettestad, 'The Paris Agreement: Consequences for the EU and Carbon Markets' (2016) 4(3) Politics and Governance 188, 192.
136. Council, 'EU-China Joint Statement on Climate Change' (*Press Releases and Statements*, 29 June 2015) <http://www.consilium.europa.eu/en/press/press-releases/2015/06/29-eu-china-climate-statement/> accessed 2 May 2017 and Commission, 'EU Steps Up Cooperation on Emissions Trading with China: New €10 Million Project Announced' (*DG Climate Action: Newsroom*, 28 June 2016) <https://ec.europa.eu/clima/news/articles/news_2016062801_en> accessed 2 May 2017.
137. Blyth and Bosi (n 39) 31.
138. See Section 2.2.1 above.

incrementalist pathway to secure the de minimis degree of alignment necessary for successful direct linkage and, as such, it is prudent for policy-makers to start early with the establishment of frameworks and procedures to assess and promote the compatibility of critical design features.[139]

A key question in the search for durable climate governance arrangements focuses on whether a bottom-up system can advance, in an adequate manner, effective climate governance without a centralised institution.[140] However, in the absence of such an internationally agreed architecture, this article has suggested that it is both possible and desirable to advance convergence through linkage by degrees based on bilateral political and regulatory cooperation. There is little reason to think that such an approach, consistent with the core convergence criteria, would not provide a stable foundation for incremental institutional development, particularly since the prevailing realpolitik of climate change negotiations strongly suggests that 'cap and trade will remain an aspect of the global response to climate change'.[141]

Incrementalist progress through the development and alignment of emissions trading schemes may ultimately prove as important to the construction of effective and durable climate governance arrangements as multilateral negotiations. Indeed, the World Trade Organisation and EU are recognised as successful products of precisely such incrementalism.[142] However, confidence in an incrementalist approach to climate governance need not replace the aspiration of progressing towards a comprehensive and binding global climate change agreement, but rather provide a critical counterpoint to the perspective that such a framework is likely to develop through a 'big bang' approach.[143] There is instead a growing recognition that the path towards a global climate framework is not pre-determined and should not be confined to progress through multilateral negotiations alone. Policies which inform and shape the construction of coherent governance architectures from separate and partial agreements, such as the refinement and implementation of core convergence criteria, better recognise the multi-speed reality of global climate action and may offer a more assured path towards a durable climate governance framework.

139. Türk, Mehling, Flachsland and Sterk (n 19) 355.
140. Goers and Pflüglmayer (n 88) 79.
141. Betsill and Hoffmann (n 52) 87.
142. Rafael Leal-Arcas, 'Alternative Architecture for Climate Change: Major Economies' (2011) 4(1) European Journal of Legal Studies 26.
143. Bodansky and Diringer (n 21) 13.